

## CLAIMS

1        Process for the manufacture of polyvinylidene fluoride (PVDF)  
homopolymer or copolymer by radical polymerization of vinylidene fluoride  
5 (VDF), and optionally of a comonomer, in aqueous dispersion and in the  
presence of a transfer agent, of a persulphate as radical initiator, optionally of a  
surface-active additive and optionally of a paraffin wax, in which:

- a) sodium acetate is added, either at the start of or during or after the  
polymerization,
- 10        b) a potassium alkylsulphonate is optionally added after the  
polymerization,
- c) an aqueous PVDF dispersion is obtained,
- d) the PVDF is collected by atomizing the dispersion obtained in c) with  
air at a temperature of between 120 and 220°C, the aqueous dispersion  
15 obtained in c) not being washed with water before atomizing.

2        Process according to Claim 1, in which the surface-active additive  
is chosen from those of general formula:  $ZC_nF_{2n}COOM$   
in which Z is a fluorine or chlorine atom, n is an integer with a value from 6 to 13  
20 and M is a hydrogen or alkali metal atom or an ammonium group or an  
ammonium group comprising at least one lower alkyl substituent.

3        Process according to Claim 1, in which the proportion of sodium  
acetate is between 50 and 600 ppm with respect to the PVDF manufactured.  
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4        Process according to Claim 1, in which the potassium  
alkylsulphonate is chosen from potassium ethylsulphonate, methyl-sulphonate,  
isopropylsulphonate and n-propylsulphonate.

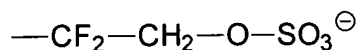
30        5        Process according to Claim 1, in which the proportion of  
potassium alkylsulphonate is between 0 and 300 ppm with respect to the PVDF  
manufactured.

6 The process of Claim 1 wherein said process is a batchwise or semi-continuous process for the manufacture of PVDF homopolymer or copolymer, in which:

- 5       • the polymerization reactor is charged with water, the optional surface-active additive and optionally a paraffin wax,
- the reactor is deaerated to remove the oxygen,
- the reactor is brought to the chosen temperature and VDF and the optional monomer are charged until the desired pressure is reached,
- 10       • the transfer agent is introduced into the reactor, either in its entirety or partly at the start of and partly during the polymerization,
- sodium acetate is added all at once or on several occasions, either at the start of or during or after the polymerization,
- the persulphate (the initiator) is added, in its entirety or in part, to start
- 15       the polymerization and the fall in pressure which results therefrom is compensated for by the addition of VDF and of the optional comonomer,
- the possible remaining initiator is added during the polymerization,
- after introduction of the planned amount of VDF and of optional comonomer, the reactor is degassed and an aqueous PVDF dispersion
- 20       is obtained,
- a potassium alkylsulphonate is optionally added,
- the aqueous PVDF dispersion is introduced into an atomizer with air at a temperature of between 120 and 220°C and the PVDF powder is collected.

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7 A polyvinylidene fluoride (PVDF) homopolymer or copolymer comprising sodium acetate, optionally a potassium alkylsulphonate, less than 300 ppm of surface-active additive and chain ends:



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originating from the use of the persulphate as initiator.

8 PVDF according to Claim 7, in which the surface-active additive is  
chosen from those of general formula:  $ZC_nF_{2n}COOM$   
in which Z is a fluorine or chlorine atom, n is an integer with a value from 6 to 13  
and M is a hydrogen or alkali metal atom or an ammonium group or an  
5 ammonium group comprising at least one lower alkyl substituent

9 PVDF according to Claim 7, in which the proportion of sodium  
acetate is between 50 and 600 ppm with respect to the PVDF.

10 10 PVDF according to Claim 7, in which the potassium  
alkylsulphonate is chosen from potassium ethylsulphonate, methyl-  
sulphonate, isopropylsulphonate and n-propylsulphonate.

11. VDF according Claim 7 to, in which the proportion of potassium  
15 alkylsulphonate is between 0 and 300 ppm with respect to the PVDF.